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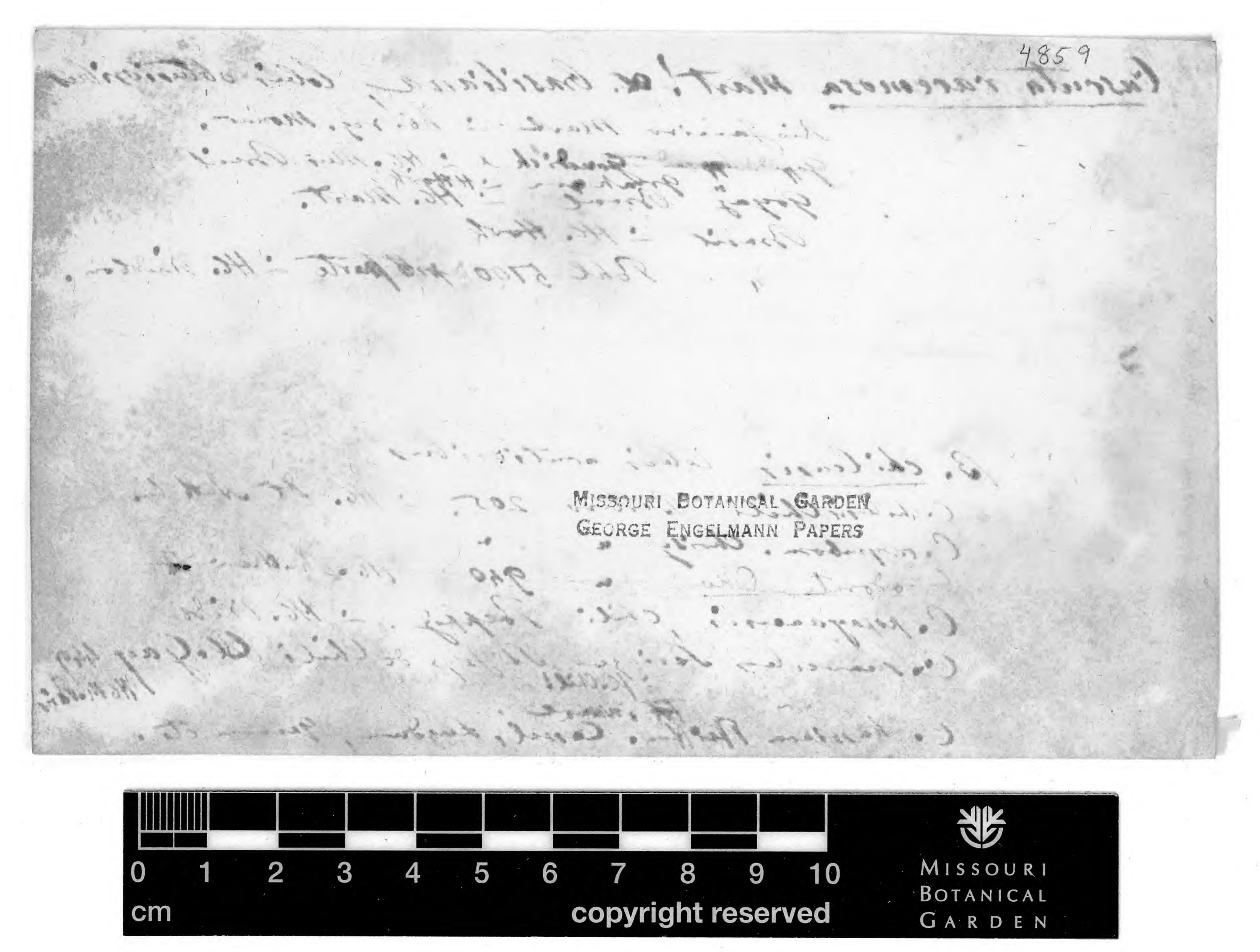
MISSOURI BOTANICAL GARDEN

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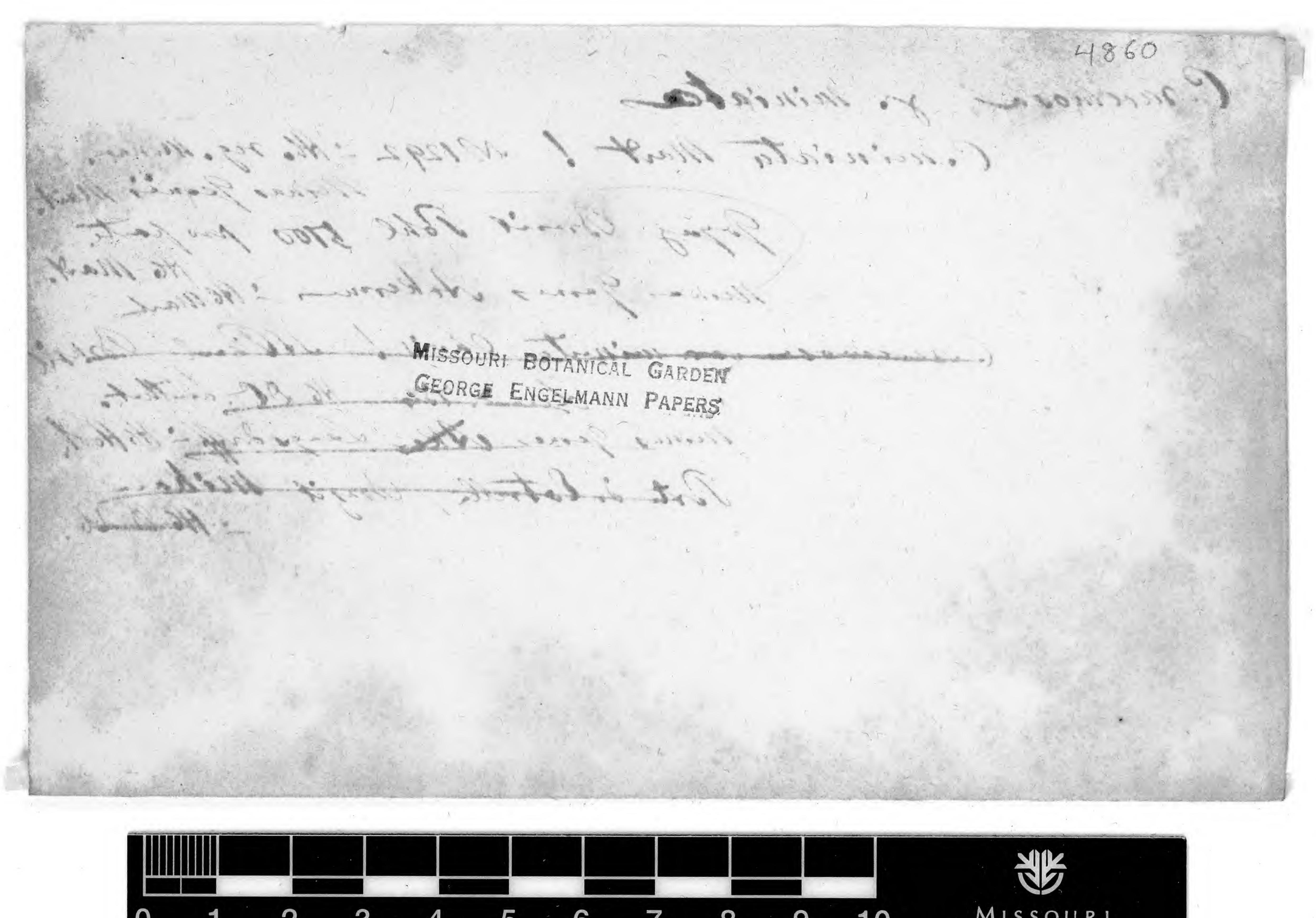
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MISSOURI BOTANICAL GARDEN GEORGE ENGELMANN PAPERS









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BOTANICAL GAZETTE.

Vol. 2.

JANUARY, 1877.

No. 3.

A NEW CUSCUTA, new at least to North America, comes now from California. A great wanderer is this C. corymbosa, which nearly 40 years ago stirred up the botanists of Europe, and the agriculturists not less. This interesting plant has quite a little history of its own. At the period indicated, between 1839 and 1843, an unknown Cuscuta made its appearance almost simultaneously in different parts of western Europe, and, singularly enough, always on Lucerne fields. In Germany it was described as C. suaveolens, C. Hassiaca, C. diaphana, and Engelmannia migrans, until Choisy, in DC. Prod., recognizing its American origin, took it for C. corymbosa, R. & P. In my monograph of Cuscuta, 1859, I established the identity of the immigrant with the South American C. racemosa, Mart., which had been introduced into Europe with the much vaunted Chilian Alfalfa, in reality the old established European fodder plant, the Lucerne, and which proved very destructive to its nurse-plant. After 10 or 15 years the energetic measures of the farmers, together with wet and cool summers, in which the seeds did not mature, seem to have eradicated the plant entirely, and as far as I am informed, it has not been heard of again in Europe. But now, lo and behold, our wanderer makes its appearance in northern California, and, precisely as before in Europe, in Alfalfa fields, "proving very injurious." It has been, without doubt, here also imported from Chili.

Rev. E. L. Greene, who has found so many new native plants in the Shasta Valley, sends also this troublesome newcomer. How long it has been there or whether it has appeared in other parts of California, where under the well-sounding name of Alfalfa the Lucerne is frequently cultivated, is as yet unknown, nor whether it will establish itself permanently. It may be well to direct the attention of the farmers, who cultivate Alfalfa, to this dangerous enemy and to urge them to destroy any dodder which may show itself in their fields, before it can spread or mature seeds. C. racemosa, Mart., belongs like our common C. Gronovii to the section Clisto grammica, characterized by two styles of unequal length tipped with capitate stigmas and a not-opening (baccate) capsule. Ovary and capsule are thickened towards the apex and somewhat pointed; inflorescence loosely paniculated with longish pedicels; flowers 1½—2 lines long, of thin texture, tube of corolla deeply campanulate, widening upwards, spreading lobes inflexed at the acute tip; scales nearly the length of the tube; capsule commonly enveloped by the corolla.

The variety, Chiliana, Eng. Cusc. p. 505, to which this form belongs, has larger and more delicate flowers than the original Brazilian type.—G. Engelmann.

Domestram The oldest living hotenist is mach-1-1





DIPLOPAPPUS ERICOIDES, T. & G.—To save labor to some others who, like myself, work under the double disadvantage of a rather limited library and an herbarium (rich enough in the later new species) with but few specimens from the original sets made prior to 1862, I put the following in print. From our present standpoint it is evident that Diplopappus as formerly understood must be partitioned out among other neighboring genera, and of the species that concern us here one goes to section ERICAMERIA of Aplopappus, and the other to section Orthomeris of Aster. In the unavoidable changing of names a confusion arises under the name above given, i. e., Diplopappus ericoides, there being two plants that bear the name in herbaria and books. The following may in some sense clear up the matter:

Diplopappus ericoides, T. & G. Eucephalus ericoides, Nutt. "Inula? ericoides, Torr! ericoides, DC., and apparently also of in Ann. Lyc., New York, 2, p. 212. Chry- Hooker and Arnott. See DC., Prod. V., p. sopsis ericoides, Eaton, Man. Bot."

Now placed in Aster under Sect. Ortho-MERIS. As the name ericoides is preoccupied in this genus I suggest for it Aster ericæfolius, which indicates even more closely its general habit.

See also Diplopappus ericoides, T. & G., Vol. V., King's Report; Pl. Wright., p. 78; Pl. Fendl., p. 69; Bot. Mex. Bound., p. 78.

Diplopappus ericoides, Less. Aplopappus 278; Bot. Beechy, p. 146; and Fl. Cal. I, p. 313.

In the last, Ericameria microphylla, Nutt., is also cited as another name for the same, and by this it appears in Flora of North America Tal Goran CA36. GARDEN

GEORGE ENGELMANN PAPERS

The two plants are so different in habit,—the one suggestive of (so far as arrangement of the foliage goes) Erica, and the other of Adenostoma fasciculatum, Hook & Arn., or of Eriogonum fasciculatum, Benth.—as well as in habitat, that any furthur description is unnecessary.—J. T. ROTHROCK.

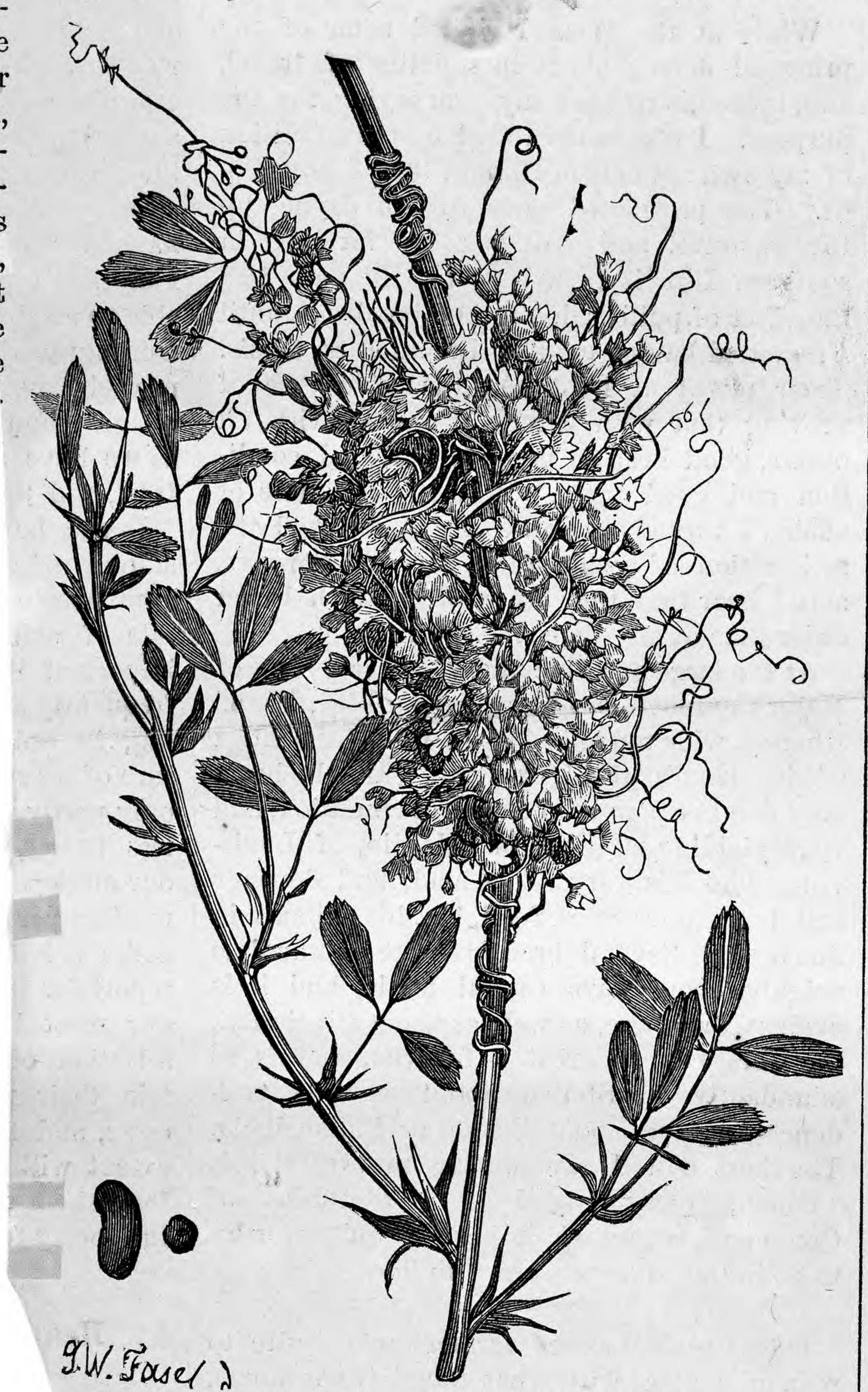
BOTANICAL RAMBLES IN EAST FLORIDA.—It was the 16th of February last when the fast and comfortable steamer "Gen'l. Sedgwick" landed me at the beautiful little town of Palatka, located upon an elevated site on the west bank of the river, and about 75 miles from Jacksonville. The enterprise and neatness of the place with its pleasant surroundings make it at once attractive and inviting to the traveler. I walked through the open built town to a hotel and my attention was attracted and my mind absorbed by the novelties along the way. Everywhere appeared the faces of Northern citizens. The handsome white dwellings and large hotels were pleasing to the eye. The natives struggling through the deep loose sand in the streets with their ox-teams suggested poverty with the ludicrous. The wild orange trees laden with golden fruit, and perfuming the air with their fragrant blossoms, ornamented the streets. The mulberry was dropping its ripe fruit. The mocking birds, perched on the shrubs and trees, made the air tremulous with their many and varied tuned melodies. The bee was homeward bound, ladened with the poisonous pollen of the Jessamine. The grasshopper manifesting all the suppleness of a midsummer day, and even the house fly, emboldened with brozen effrontery, would alight in the stranger's way. Indeed, everywhere seemed to





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dan, of Fulton, N. Y., is here illustrated. The seat-spring is shown in fig. 1, and it is, upon trial, found to be remarkably easy. It is calculated to bear any weight up to 800 pounds, without losing any of its elasticity, or breaking. nibition of the Figure 2 shows a spring intended for a wagon-



to this iently what here in-

body. It is calculated for a weight of 800 pounds to each spring. Two will thus bear 1600 pounds. A spring for wagon-tongues is also made upon this same principle; it is said that there are some thousands of railroad cars now running, which are furnished with springs of this kind. In a recent test a set of springs were taken from beneath a car after three years' use, and were as perfectly elastic as when first The strength of springs made upon the torsion principle is so great that one made of 7-inch steel-bar will bear a load of 7,000 pounds, and still be perfectly elastic under it.

A CALIFORNIA WEED-DODDER UPON ALFALFA.

A Dangerous Weed in California.

Improved agriculture is of so recent a date in California, that but few of the pests in the way of insects and weeds that trouble the cultivator in the older States, have come to plague his California brother. Alfalfa or lucerne is one of the staples of Californian agriculture, and a weed that threatens the destruction of this crop, is a matter of the first importance. Notices of a particularly troublesome dodder have appeared in the California papers, and we are indebted to the kind attentions of our friends of the Pacific Rural Press, of San Francisco, and of the Sonoma Democrat, for specimens, which have enabled us to examine the plant, and to make an engraving of it. Almost every

one knows our common dodders, which hang their yellow or copper-colored, wiry stems over the bushes in the swamps of the Atlantic States. There are ten native species east of the Mississippi, several more west of that river, and about seventy species thus far known throughout the world, all of which, with their varieties, are admirably described in Dr. G. Engelmann's elaborate account of the genus. The dodders are all parasites; the seed germinates in the ground, and the stem attaches itself to some other plant; by means of numerous disks or suckers, it draws upon the other plant for nutriment, and soon cuts itself loose from the root, and feeds wholly upon its unfortunate host. Some dodders live upon exogenous plants indiscriminately, while others prefer particular plants, or those of certain families; one confines itself to flax, which, besides the one in question, is the most generally injurious. One of our native species has been known to be troublesome upon young trees in nurseries. The dodder upon alfalfa, so far as we can determine from description, having no authentic specimens for comparison, is Cuscuta racemosa, variety Chiliana. The species is a very variable one, and between it and related species there is some confusion. The seeds of this were no doubt introduced into California with alfalfa seeds from Chili, the same as it was into Europe many years ago, where it was very destructive to lucerne, often destroying whole fields. The engraving shows the habit of the weed; when once fixed, it spreads and entangles the several branches of a plant, or those of neighboring plants; under this heavy draught made upon its life-blood, as we may regard the sap, the lucerne ceases to grow, and at length turns yellow, and dies from exhaustion. The Sonoma Democrat publishes an opinion that the dodder now so troublesome upon the alfalfa is a native species, but an examination of the specimens makes us quite sure that it is not. One not acquainted with the minute characters, by which the species are distinguished, might, from their outward resemblance, regard them as the same. At the lower left hand of the engraving the relative size and shape of the two seeds are shown, both of course magnified. The alfalfa seed is like a minute, rather flattened, kidney bean; that of the dodder is irregularly orbicular, and only about one-third as long as the other. An ordinary magnifier will readily detect the presence of this or other foul seeds in the alfalfa seed. With this, as with other weeds, one important point is to avoid introducing it, and care in selecting the seed will do this. Where it makes its appearance the most prompt measures should be taken to prevent its spread. Cut the infested plants, and burn them, and do this before the parasite has matured its seeds. If the dodder has too full possession to allow this to be done, then the plan followed in France, (where a dodder, and probably the same

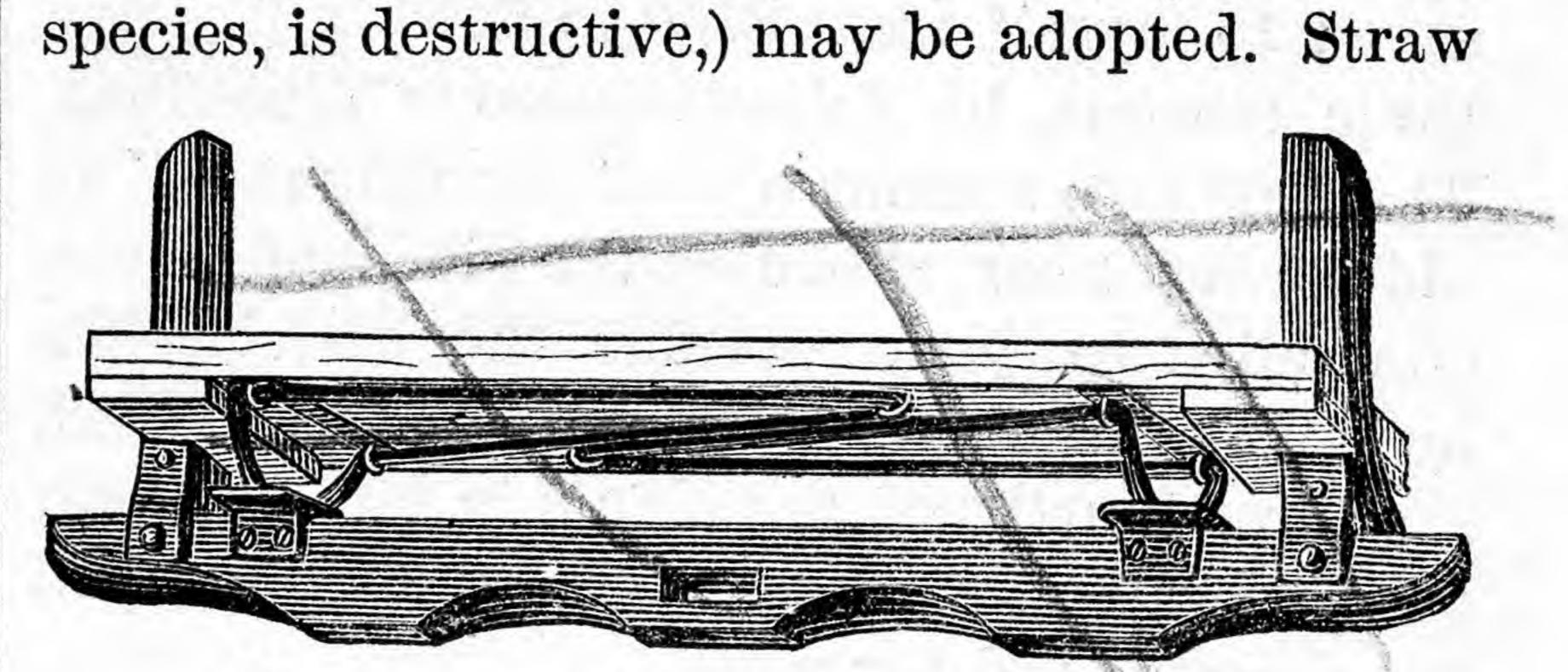


Fig. 2.—TORSION WAGON-BOX SPRING.

is laid in abundance among the plants in a dry time, and is then set on fire; the sudden flame destroys the parasite, but does not materially injure the alfalfa, which starts from the roots, and the stems, that escape injury by the fire.

autumn. He then carries them through the hight of milking on high winter feed, and finds that when they are five or six months gone, and would naturally begin to fall off in their yield, the flush of the May and June pastures gives a fillip to their production, and carries them up pretty nearly to their full yield again,—by the time the summer drouth pinches the pasture, they are ready to be dried off for their next calving. This, in connection with the fact that the winter market is best for butter, makes his course seem judicious, and worthy the attention of others. Cows coming in in the spring give more during May and June than autumn calvers do at any time, but when they begin to feel the effect of their next pregnancy, there is only winter feed to be given them, and this does not sustain their productiveness as grass would do.

A very large item on this farm is the feeding of pork. Shoats are bought in fair store-hog flesh, are very highly fed on skimmed milk and corn, and are drafted for the market when in good selling condition. There is generally a profit of about one cent per pound on the original purchase, and the average increase of

weight is ... 30 pounds.

The following experiment shows the profit of the operation, and indicates the care with which business details are attended to on this farm: June 12th, 10 average hogs were bought, weighing 1,850 lbs. They cost \$87.87½ (\$4.75 per hundred pounds). Corn cost 56 cents per bushel; skimmed milk, 20 cents per hundred lbs.; meal and bran, 1 cent per lb. August 3d, after 52 days feeding (the cost of feed being \$41.81), they had gained 975 lbs.—the increase costing \$4.29 per hundred lbs. They were then sold at 6 cents per lb., making a profit of \$39.82, to say nothing of the manure. They feed every year about 1,500 hogs, to which they add about 90 tons weight of pork.

I was enabled to see the whole operation of skimming, churning, working, salting, re-working, and packing the butter, the whole being done in a most systematic and business-like way, and the product being of first-rate quality for a dairy of common cows. The butter is of capital flavor and of good color. It lacks the firm texture of Jersey butter, and they are now considering the question of buying a Jersey bull, and raising the heifer calves from the best twenty of their own cows. If this course is carried on for a few years, there will be at Marengo a butter dairy herd that will be hard to equal.

The following account, received from Mr. R. Q. Tenney, of Colorado, is gratifying as confirming a theory which I have proved in practice to be a sound one, and have earnestly recommended:

"I wish to thank you for your article published in the winter of 1871, on transplanting mangels and sugar beets. I have probably saved to myself from \$150 to \$200 in the past three seasons, by following your directions. The first two seasons one of my neighbors, an old Iowa farmer, ridiculed the idea, but he was compelled to "acknowledge the corn" when he saw the result. This year a late frost killed, say three-fourths of the plants in my seed bed, and being so far from a base of supplies, had not time to send for more.

"Another time I will not be in so great a hurry to plant, as I find that they do not re-

quire a very long season.

"I transplanted from the 15th to the 22nd of July, and have fine beets, although the grass-hoppers hurt them some.

"We are getting a good number of Jersey cattle into the Territory. I think I imported the first, and now have a fine bull, three years old Feb. 11th last."

FINE HERDS AT THE WEST.

While at the West I visited some of the principal Jersey herds in my line of travel, and, indeed, extended my journeying for the purpose. I was less gratified by the condition of my own animals in Illinois, than I hoped to be. The protracted early drouth drying up the pastures, and reducing all farming in southern Illinois to a very difficult pass, had the effect of pulling down their condition until I regretted having exhibited them at St. Louis. Their plight at least had the advantage of proving that with Jersey cattle, as with all others, good keep is necessary to good condition and good yield. Realizing the state of affairs, I turned on more steam, and had the satisfaction of seeing them at once improve, and I hear that they are now in much better order than at any time since June.

At the large and splendid blue-grass farm of Major Campbell Brown, at Spring Hill, Tenn., where a wide range had made up for the effect of the drouth, the Jerseys, (of which he has a very fine herd), were in excellent condition, and were yielding largely. Mr. Hardin, of Louisville, who has very little land, and depends mainly on purchased food, has his animals in fine order. Several breeders in the immediate neighborhood, have capital herds, and it is evident that here, as well as about Cincinnati, the Jersey is as great a favorite, and is as adundantly distributed about summer residences, as even about Boston or Philadelphia. The best cow I saw during my travels, is "Dinah," owned by John L. Stettinius, of Cincinnati, whose whole herd is quite worthy to be in the same pasture with her.

I advise all Eastern farmers who desire to remain content with what they have at home, and to bear with equanimity the six months of winter feeding that our climate makes necessary, to keep away from Mr. Alexander's 3,000acre farm, of Woodburn, in the blue-grass region near Lexington, Ky., where animals can graze during nearly the whole winter; where the pastures are greener and more beautifully wooded, than any which we know; where the rarest animals, representing hundreds of thousands of dollars, are kept under circumstances of ideal perfection; and where our most enthusiastic dreams of pastoral life and profitable farming, are blended in a tantalizing reality. Whoever visits Woodburn, buys a few hours of delight at the expense of months of unsatisfied longing-tempered, however, with the influence of an example that is full of suggestive details, which cannot fail to have an effect on his future plans and aspirations.

I receive from all parts of the country, reports of success with Jersey cattle. Mr. F. M. Churchman, of Indianapolis, writes, that he has a heifer, only two years old last spring, which made in the flush of her milking, 12 lbs. 3 oz. of butter per week, and now, seven months after calving, is making over 7 lbs. per week. She is probably one of a small herd, and well kept, but this report is only a specimen of those frequently sent me, and they indicate that success with Jerseys, is by no means confined to the older breeders of the Eastern States; they seem perfectly adapted

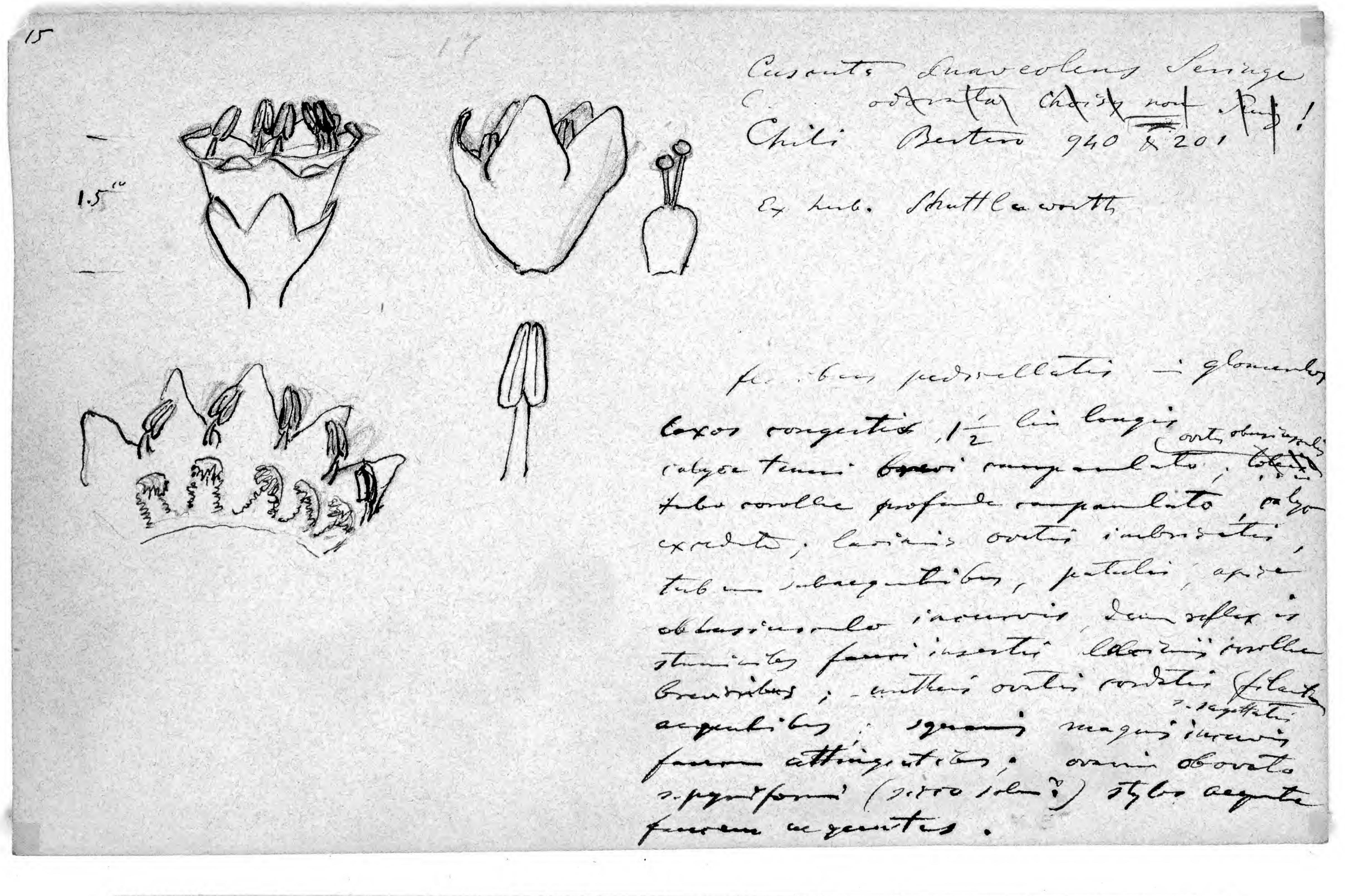
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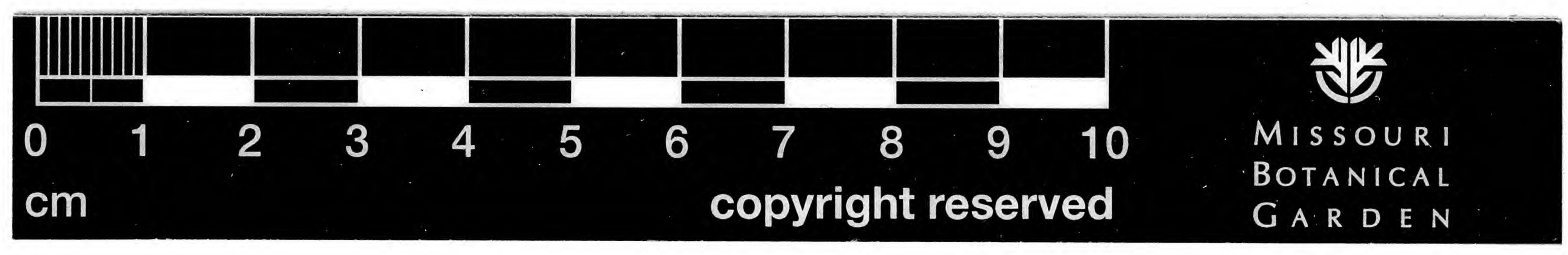
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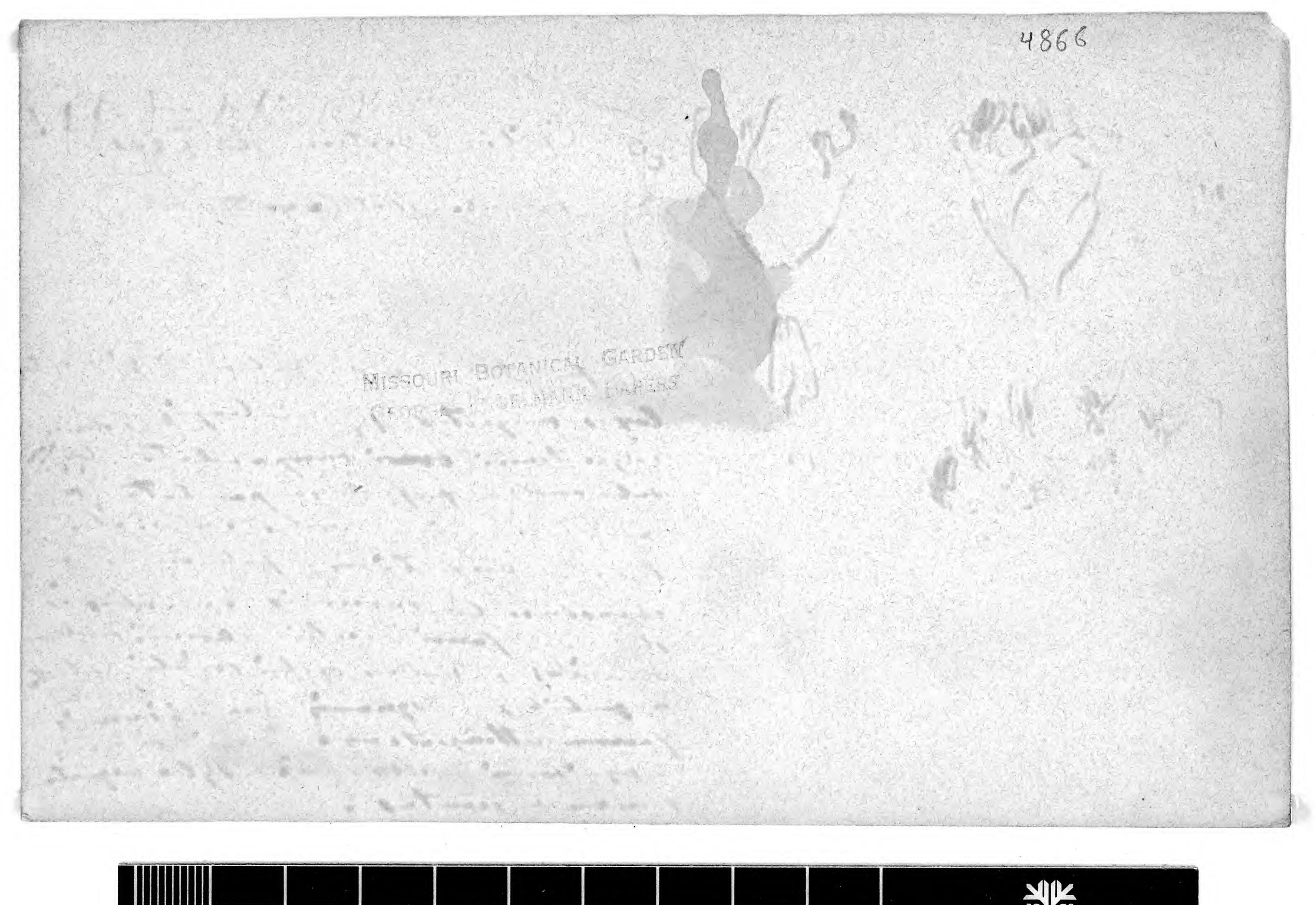
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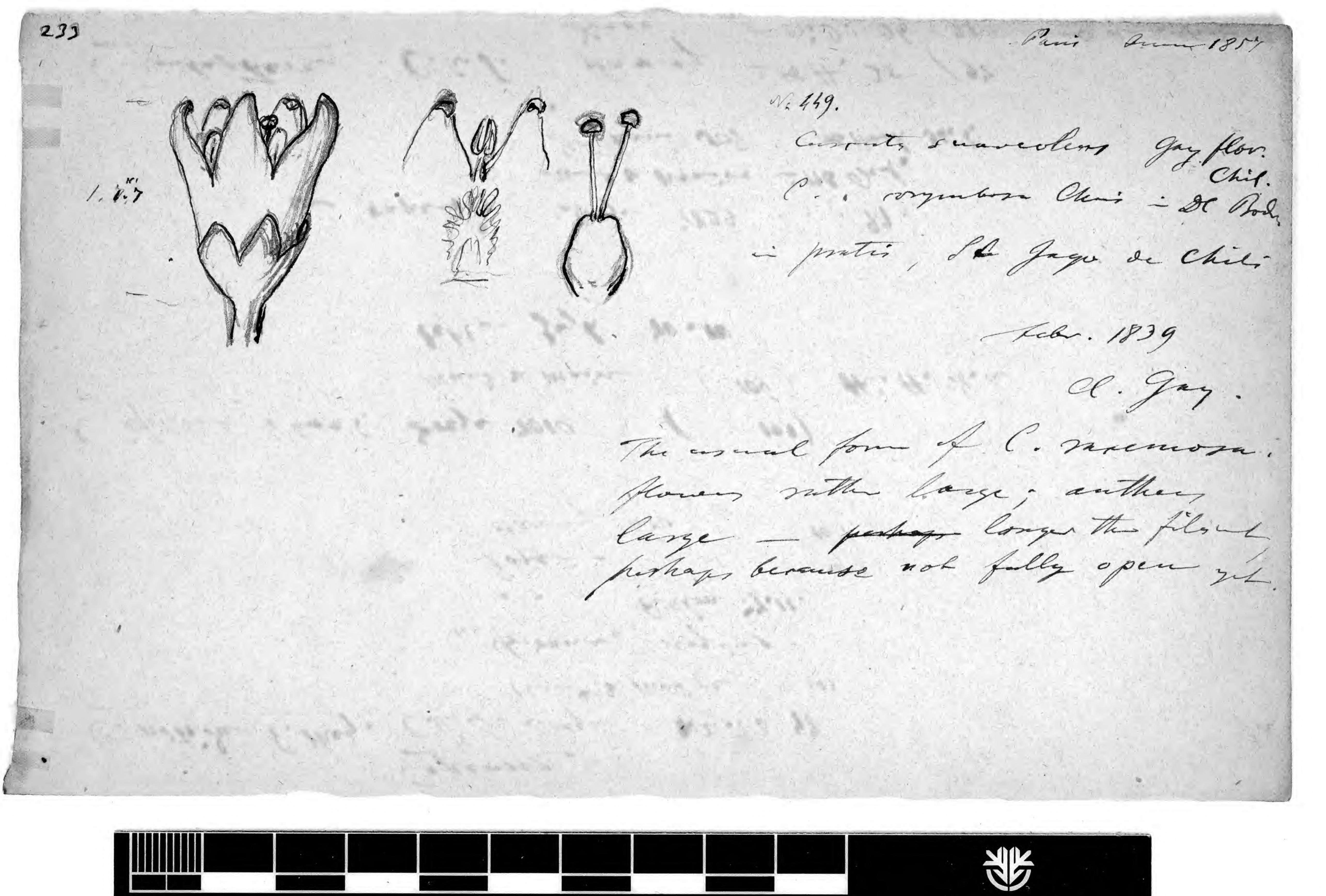
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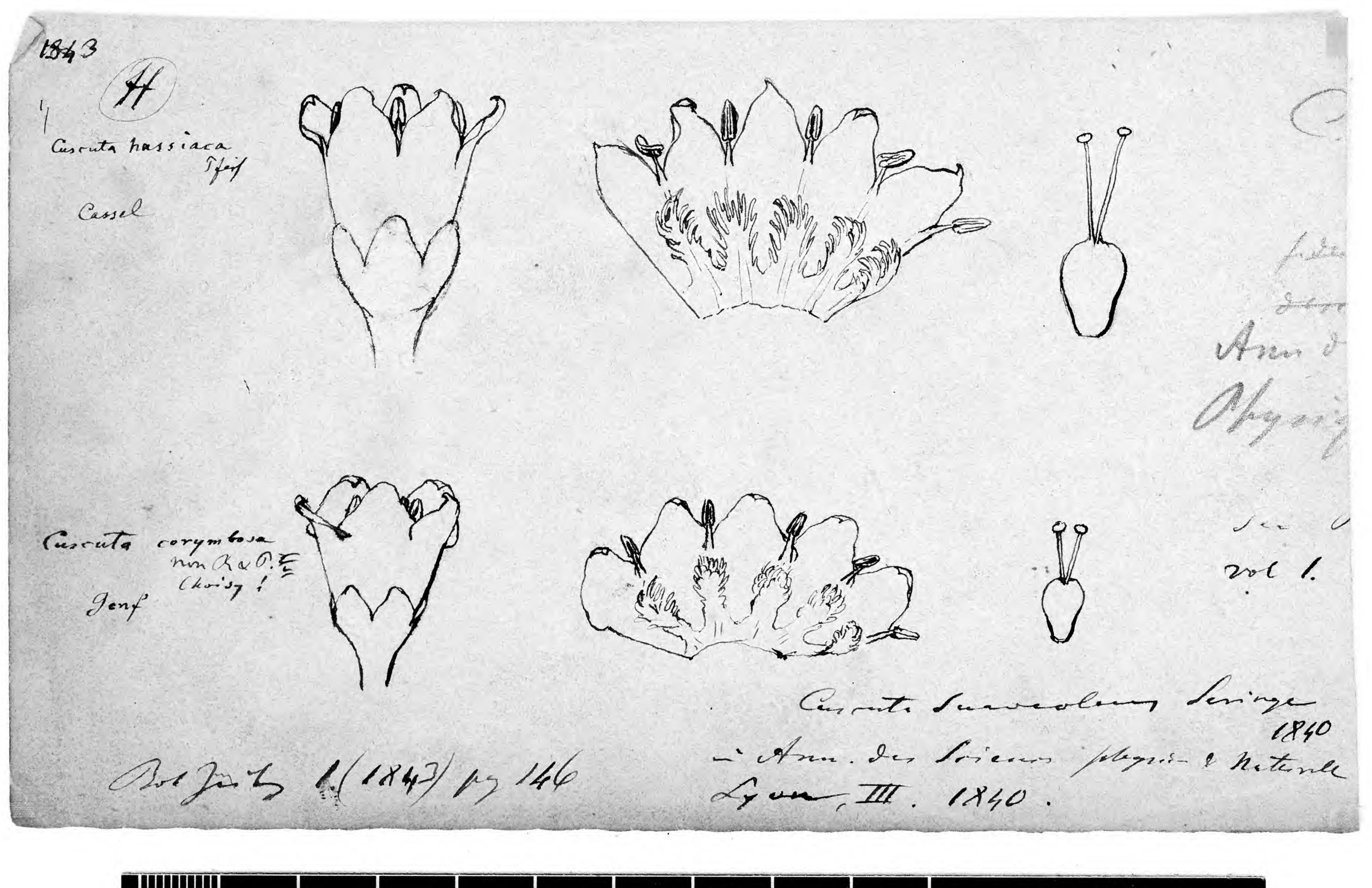




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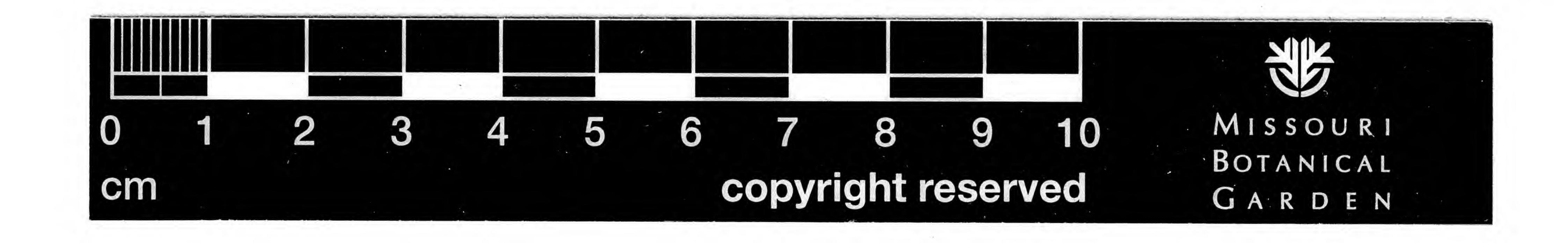
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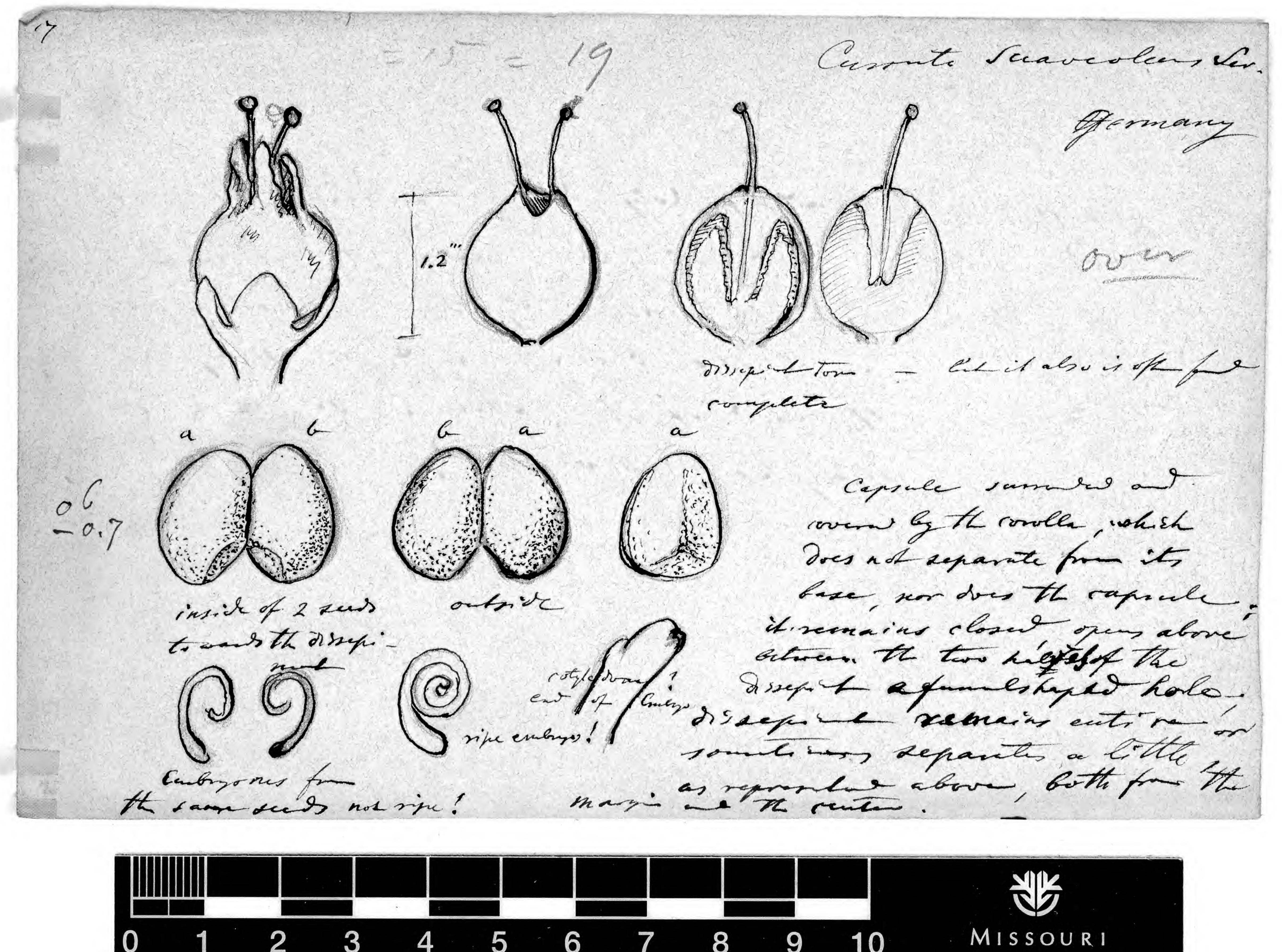
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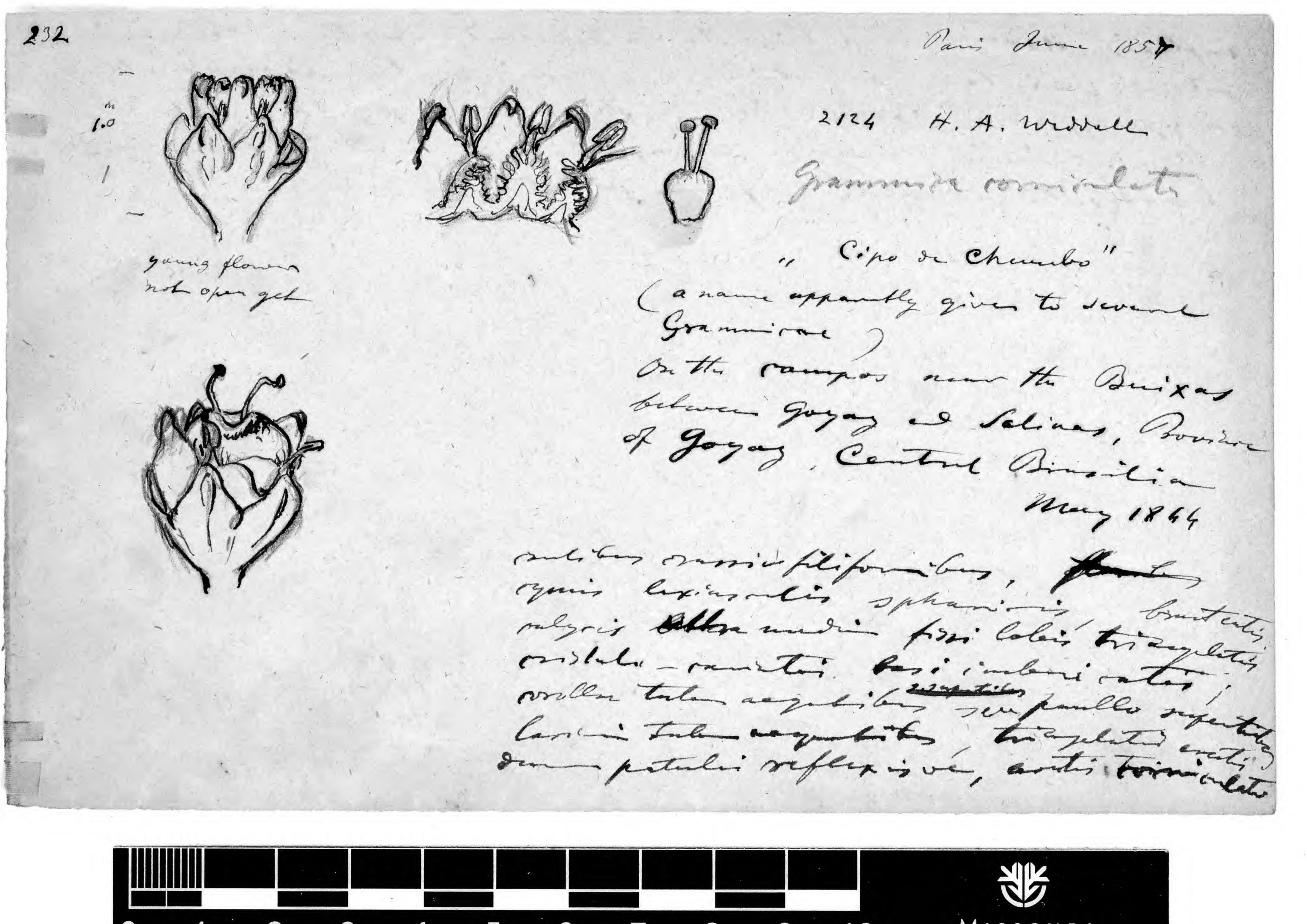






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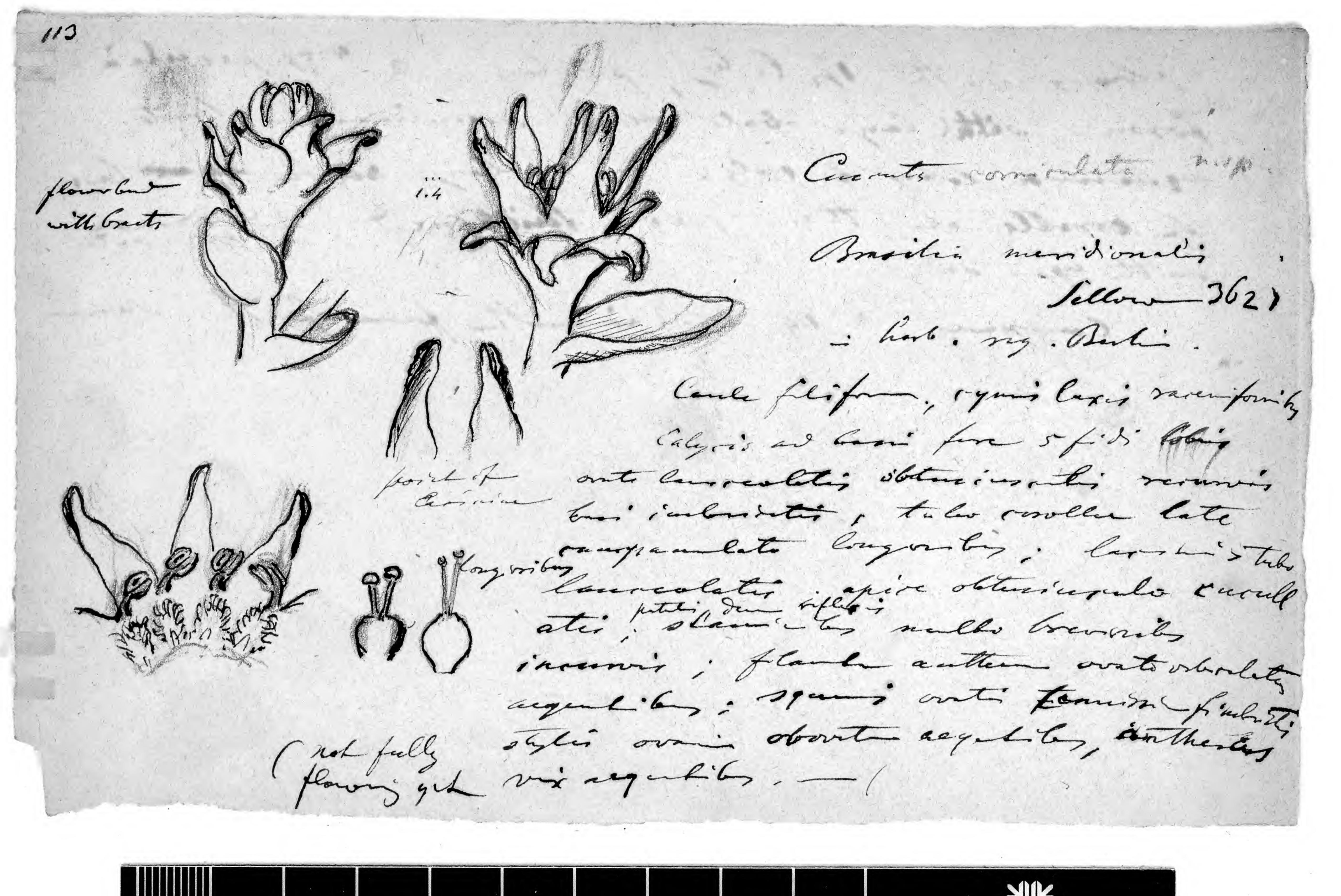






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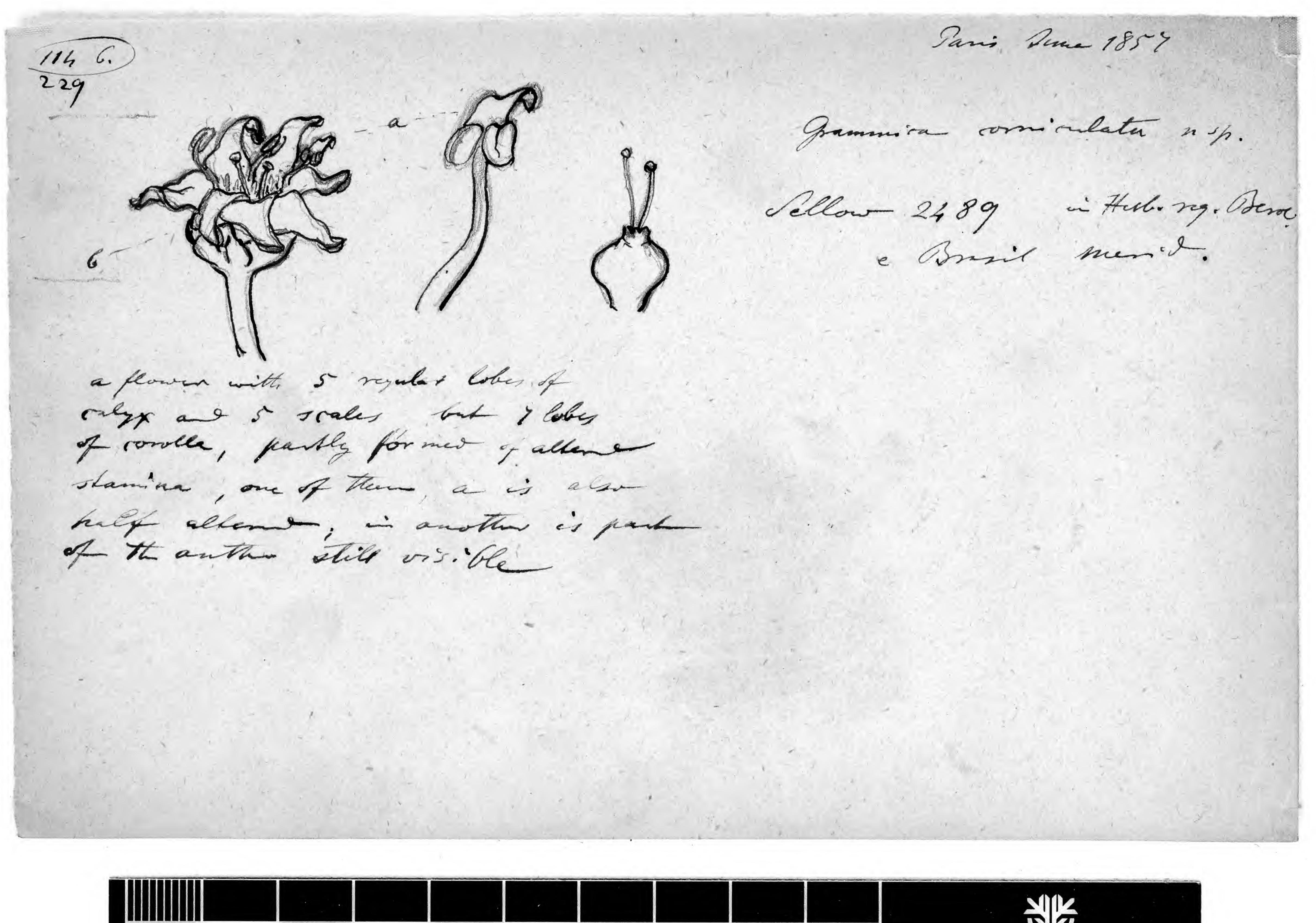






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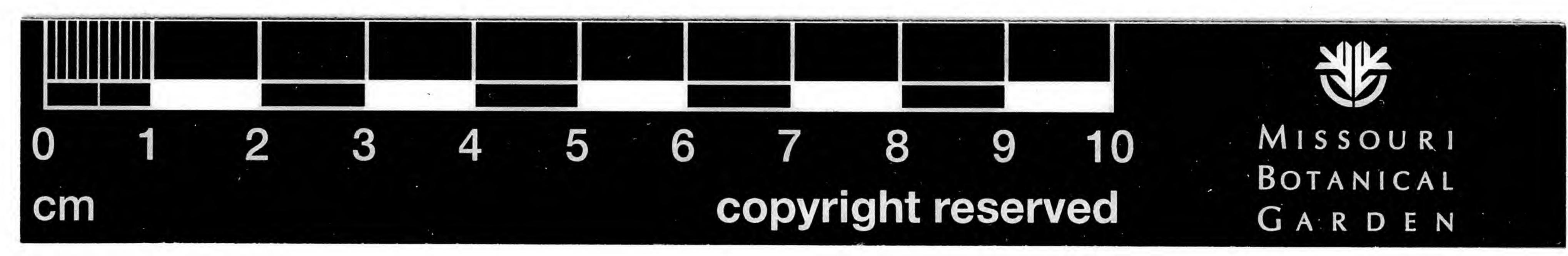
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